

CALATHEA CROATII (MARANTACEAE),  
A NEW ENDEMIC SPECIES FROM PANAMA

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ABSTRACT

*Calathea croatii* H. Kenn., endemic to Panama, is described as new for inclusion in Flora Mesoamericana. It occurs in montane wet to cloud forest habitat and is only known from one collection each from Prov. Chiriquí, Com. Ngábe-Buglé and Prov. Coclé. It shares a similar habit, leaf venation and inflorescence morphology with the closely related *C. guzmanioides* L.B. Sm. & Idrobo. *Calathea croatii* differs from *C. guzmanioides* in the glabrous vs. tomentose major veins of the adaxial leaf surface and the bracts ovate to narrowly ovate with apex acute vs. broadly ovate to broadly elliptic with broadly obtuse to rounded apex (bract length to width ratios 2.62–2.75 vs. 0.95–1.78:1).

RESUMEN

*Calathea croatii* H. Kenn., endémica de Panamá, se describe como nueva para incluirla en la Flora Mesoamericana. Ésta ocurre en el bosque montano muy húmedo y bosque nuboso (nefosilva); solo conocida de una colección de la Prov. Chiriquí y a Com Ngábe-Buglé & Prov. Coclé. Está estrechamente relacionada con *C. guzmanioides* L.B. Sm. & Idrobo y comparte un hábito similar, venación de la hoja, y morfología de inflorescencia. *Calathea croatii* se distingue de *C. guzmanioides* por las venas principales glabras vs. tomentosas en la superficie adaxial de las hojas y las brácteas de ovadas a angostamente ovadas con el ápice agudo vs. anchamente ovado a anchamente elíptico con el ápice de anchamente obtuso a redondeado (la relación largo/ancho de las brácteas 2.62–2.75 vs. 0.95–1.78:1).

In preparation for the Flora Mesoamericana treatment, the species of Marantaceae from Panama has been a special focus. With considerably more collecting since publication of the Woodson and Schery (1945) treatment for Flora of Panama, listing 23 species, the total has more than doubled. Besides field work, recent herbarium studies at Missouri Botanical Garden and University of Panama have uncovered additional new species. Currently, a total of 67 species are recognized (ca. 191 per cent increase from the original Flora of Panama treatment). Seventeen species are recognized as endemic, including the one described herein plus two as yet undescribed taxa.

TAXONOMIC TREATMENT

*Calathea croatii* H. Kenn., sp. nov. (Figs. 1, 2). TYPE: PANAMÁ. CHIRIQUÍ: along road between Gualaca and Chiriquí Grande, 5.9 mi beyond Los Planes de Hornito (in direction of Lake), 4.8 mi beyond turnoff to Caldera, 1225 m, 08°45'N, 82°14'W, 19 Sep 1987, T.B. Croat 67776 (HOLOTYPE: MO).

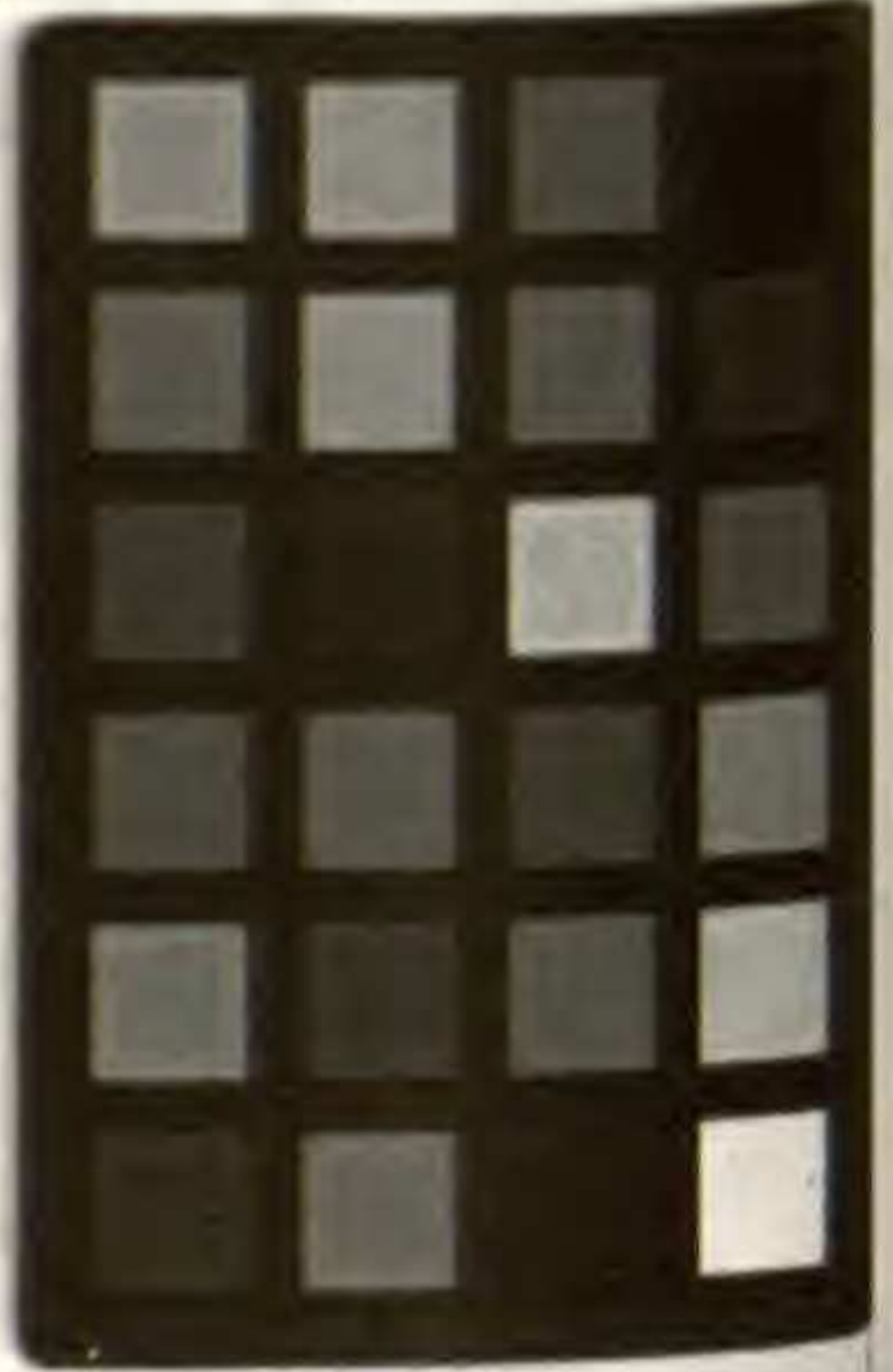
*Calathea croatii* differs from the most closely related species, *C. guzmanioides*, by the glabrous vs. tomentose major veins of the abaxial leaf surface, the bracts ovate to narrowly ovate with apex acute vs. broadly ovate to broadly elliptic with apex broadly obtuse to rounded (bract length to width ratios 2.62–2.75 vs. 0.95–1.78:1).

**Plants** rhizomatous, caulescent herbs, 1.5–2.05 m; cataphylls narrowly ovate, red-purple; stem dark purple just below subtending leaf, the rest green, appressed tomentose, hairs 0.5–1 mm. **Leaves** 2–4 basal with a single cauline leaf, rarely 2, borne above an elongate stem internode, ca. 0.9 m; leaf sheath often auriculate, wings (margins) dying back in age, often tearing away from central portion, wings apically red-purple, appressed tomentose, hairs 0.5–1 mm, central back portion green in upper 10–15 cm, red-purple basally, appressed tomentose on wings, hairs 0.5–1 mm, 15.7–24 cm in subtending leaf, 58–73 cm in basal leaves; petiole bearing a narrow groove adaxially, green, subglabrous apically, hairs more subglabrous apically, hairs more prevalent and longer, to 0.5 mm, just above sheath, 9.1–41.3 cm in subtending leaf, 32–108 cm in basal leaves; pulvinus elliptic in cross-section, olive-green, minutely tomentose in narrow band adaxially, the rest glabrous, hairs



MISSOURI  
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TYPE SPECIMEN  
Missouri Botanical Garden (MO)

PANAMA

MARANTACEAE  
*Calathea yalleni* Woodson *sp. nov.*  
*aff.* H.K. 204  
*C. croatii*

Prov. CHIRIQUI: Along road between  
Gualaca and Chiriquí Grande, 5.9 mi  
beyond Los Planes de Hornito  
(in direction of Lake); 4.8 mi beyond  
turnoff to Caldera.  
8°45'N 82°14'W 1225 m

Less than 1 m; bracts brownish;  
Fruits fallen.

Det. H. Kennedy 1989 (not *C. yalleni*)  
19 Sept. 1987

Thomas B. Croat 67776  
MISSOURI BOTANICAL GARDEN HERBARIUM (MO)

Herbarium - University of California Riverside  
HOLOTYPE  
*Calathea croatii* H. Kennedy ined.  
Det. by Helen Kennedy

2012

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Fig. 1. *Calathea croatii* H. Kenn. Holotype. Type scan provided by Missouri Botanical Garden (Croat 67776, MO).





FIG. 2. *Calathea croatii* H. Kenn. A. Habit. B. Young inflorescence with flowers. C. Older, fruiting, inflorescence. Note, widely spread bracts. D. Detail of flower (Black & A. Rodriguez 37, PMA, photos by Carla Black).



TABLE 1. Comparison of leaf and inflorescence characters among three described Panamanian species and one new one, *Calathea croatii*, in the "*C. lanicaulis* Group."

Character	<i>Calathea allenii</i>	<i>Calathea confusa</i>	<i>Calathea guzmanoides</i>	<i>Calathea croatii</i>
Minor veins between major veins	1–3	7	7	7
Pubescence on major veins	glabrous	tomentose to subglabrous	tomentose (rarely glabrous)	glabrous
Infl. height (cm)	11–21	12–17.5	(16–)18–38	14–22
× width (cm)	× 3–5	× 3.5–5.1	× 7–12	× 7.5–15.4
No. of bracts	16–45	18–30	25–65	31–45
Bract apex	emarginate inflexed, cupped	emarginate inflexed, cupped	obtuse to rounded, patent to recurved	acute, recurved
Sepal length (mm)	30–32	30–36	13–23	21–23

0.2–0.25 mm, 1.5–2.8 cm; leaf blade somewhat chartaceous, ovate, apex obtuse to rounded with acumens up to 1.9–2 cm, base rounded to subtruncate shortly abruptly attenuate, 34–58 × 8–21 cm in subtending leaf, 36–95 × 8–33 cm in basal leaves (length:width ratios 2.76–4.25[–4.43]:1) lateral veins 30 to 33 per 3 cm (measured at midpoint of each side of blade), adaxial surface matte green, glabrous, midrib yellow to greenish yellow, glabrous, abaxial surface light green, minutely tomentose along major veins, midrib yellow with caramel tinge, densely appressed tomentose along sides, minutely so along center in basal ¼, appressed tomentose throughout apically, hairs colorless, 0.25–0.7 mm. **Inflorescence** terminal, 1 per shoot, imbricate when young, lax in fruit, ovoid to broadly cylindrical, 14–22 × 7.5–15.4 cm; peduncle dark red-purple, densely appressed tomentose, 1.8–2.8 cm. **Bracts** 31–45, spirally arranged, herbaceous apically, ovate to narrowly ovate, apical ones proportionally longer and narrower, apex acute, very tip occasionally blunted, apex recurved, apical 0.5 cm of margin smooth, subsequent 1–1.5 cm markedly undulate, 5–7.5 × 1.8–2.8 cm, abaxial surface of bracts dark red-purple, appressed tomentose, hairs faint straw-colored, 0.4–0.7 mm, adaxial surface dark red-purple, basalmost 1–1.5 cm pale pink to white, recurved apex dark, almost blackish, purple in younger, flowering inflorescences, sparsely pilose near apex, glabrous basally, bracts in age, in fruit, becoming deep red with apex and apical margins dying; bicarinate prophyll membranous, ovate to elliptic, apex obtuse, translucent cream-white, tinged red-purple at apex, 2.1–2.6 × 1.2–1.5 cm, 0.65–0.85 cm wide, carina to carina; secondary bracts and bracteoles unknown. **Flowers** open spontaneously. **Sepals** membranous, narrowly elliptic, cream-colored, very apex tinged pale purple, 21–23 × ca. 4 mm. **Corolla** tube cream-colored to pale yellow apically, ca. 37 mm; corolla lobes subequal, elliptic, apex obtuse, margins inrolled appearing acute, light purple abaxially, faint purple to nearly white basally adaxially, 14–16 × 4–5.5 mm. **Staminodes** 3; outer staminode broadly elliptic, apex rounded, clawed at base, apical ½ to ⅔ dark purple, basal portion yellow, ca. 13 × 9 mm; callose staminode totally callose, apex rounded or with minute acumens, yellow basally, apical ¼ dark red-purple, ca. 15 × 6 mm; cucullate staminode yellow, ca. 9 mm; stamen yellow with lateral petaloid appendage; ovary smooth, cream-colored, 2.5 × 2 mm. **Seeds** 5.5–6 × 4.5–5 × 4–4.5 mm.

Additional specimens: **PANAMÁ. Ngábe Buglé:** beyond Hato Chami on trail to Hacha, heavily disturbed humid forest, growing on steep embankment in 50% shade, 1200 m, 8°31'12"N, 81°46'48"W, 11 Apr 2008, C. Black & A. Rodriguez 37 (PMA); **Coclé:** behind sawmill above El Copé, in understory of primary forest, 2400 ft, 25 Aug 1983, W.J. Kress & B. Hammel 83-1592 (DUKE 293776).

**Distribution and habitat.**—*Calathea croatii* is endemic to Panama. It is known from three localities in western Panama, one in Chiriquí Prov., the type locality, a second in the adjacent, Comarca Ngábe-Buglé and the third from Coclé Prov. It occurs in montane wet or cloud forest habitat. The first two collections were at 1200 m and the third at ca. 735 m elevation.

**Discussion.**—*Calathea croatii* belongs to the informally treated "*C. lanicaulis* Group" as outlined in Flora of Ecuador (Kennedy 1988:47). These species are characterized by their habit of several basal leaves with a single cauline leaf, subtending the inflorescence(s) of spirally arranged bracts, borne above an elongate stem internode. Species in the "*C. lanicaulis* Group" are predominantly South American with a single species, *C. guzmanoides* as far north as Costa Rica (Kennedy, 2003), five described species in Panama, six in Colombia and



nine in Ecuador. *Calathea croatii* is most closely related to *C. guzmanioides* sharing a similar habit, leaf venation pattern with 7 minor veins between the major veins and inflorescence morphology. *Calathea croatii* differs from *C. guzmanioides* in the glabrous vs. tomentose major veins of the adaxial leaf surface, the bracts ovate to narrowly ovate with apex acute vs. broadly ovate to broadly elliptic with broadly obtuse to rounded apex (bract length to width ratios 2.62–2.75:1 vs. 0.95–1.78:1). *Calathea croatii* differs from the related *C. allenii* Woodson and *C. confusa* H. Kenn. by the purple to red vs. green to yellow-green bracts with an acute, recurved vs. emarginate, inflexed apex.

*Etymology*.—The specific epithet, *croatii*, is in honor of Thomas Croat, P.A. Schulze Curator of Botany, Missouri Botanical Garden. It is a pleasure to thus recognize his contribution to our knowledge of the Panamanian flora and thank him for the hundreds of Marantaceae specimens he has collected throughout Central and South America.

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